PROJECT SPECIFICATION STATEMENT

Α.	Project Co	de: <u>USK</u> I	в.	Program	ISP	
----	------------	------------------	----	---------	-----	--

C. Project Title Future Skill Requirements for Software Sevelopment

D. Objective: To help the IS Maragement dentify the skills mix requirements needed to take advantage of the emerging techniques, methodolgies and Tools for daveloping application software, and to analyze the affects of the changing spills mux on the overall IS function.

E. Audience (order of priority)

	User/ Vendor	Job Function	Type Company	Company Characteristics
Ŀ	U	IS Director - VP	Fortu	~ 1000
2	И	IS Strategie Planners		
3	ч	IS Jech Support Managers		
4	И	Is Systems Dev. Managers		
5	4	End-Users Anolved in Syst Dev.		
_				

F. Reasons for Choosing the Subject System development bottlewick related to the lack of skills

1. required to use available technology

- Traditional systems development life cycle 2. methodologies utilizing new tools, regiring new spills
- 3. Major impact on IS recruiting & staffing activities
- 4. Major impact on Is training & solucation strategies
- 5. Major impact on future organizational structure of IS



G. Scope of Study

- 1. Includes: analysis of the affect the latest software davagement the productivity tools and methods are having on the skill. mix requirements of the regrerate IS function. analysis of the skill requirements for the and support of end user developed systems, a broad look at the changing structure of the IS function brought about by the new approaches to soften development,
- 2. Excludes: Excludes any evaluation of specific productivity tools. Epcludes issues related premarily to systems programming (il., modifying operating systems, Turing the system, writing compilers, etc) Excludes analysis of other systems development skills which are unrelated to software development (ie data gothering, proposal preparation, cost/benefit analysis, etc.)
- H. Uses of Report: To identify the future skills mix requirements for the IS function to assisting in the development of strategic stoffing plans: To evaluate her others are approaching the problem of staffing, recounting, and training to provide the necessary human resources for future software development.

- 1. Issues
 1. What impact are the systems development productivity techniques and methodologies having on the skill requirements of the IS further?
 - 2. What impact is the trend toward end-user developed systems having on the IS skill requirements;
 - 3. How are these new systems development approaches affecting the training and education activities for the IS function?
 - 4. How are there new systems development approaches affecting the staffing and recruiting activities for the IS function?
 - Now are the career paths of the Is professionals changing?
 - 6. How are companies handling the prelim of human resource spills obsolesience?
 - What will the organizational structure and skiller mix of the typical IS algorithment or three to five years in the future?



J.	Market Forecast No Y	es Period
κ.	Delivery Modes Covered N/A	
	Remote Computing (RCS) Batch Processing Facilities Management Professional Services - Programming and Analysis Professional Services - Education and Consulting Integrated Systems	Systems Software - Mainframe/mini Systems Software - Personal Computer Application Software - Mainframe/mini Applications Software - Personal Computer
L.	Interview Profile	

1. Type of Interview:

	On-Site		Phone		Mail		То	tal
Type of Respondent	Number	R/A or Senior	Number	R/A or Senior	Number	R/A or Senior	Number	R/A or Senior
User			20	5		- 17	20	5
Vendor								
Other (Specify)								
Total			20	2			20	ے



2. Respondent Characteristics

Number of Interviews	Job Function	Company Characteristics (e.g., SIC, Size, etc.)
7	IS PLANNING	3 FINANCIA- 6 Discrete MFG
2	IC MANAGERS	3 PROCESS MFG 2 INS.
- 11	IS DIRECTORS	2 GOVANT. 4 DISTRIBUTION
		,

M. Page Allocations

Text	51	
Exhibits	18	
Sub-total		69
Appendices	6	
Total Pages		75



... N. Table of Contents: Overview

	# Exhibits	# Text	Tot Pag
I. INTRODUCTION		3	13
A. Objective, Audience and Need		1,0	1.
B. Scope and Use		.5	1 03
C. Methodology		15	1
D. Related INPUT Reports		110	11
II. EXECUTIVE SUMMARY (Format = Standard) frescription A. Purpose B. Findings	. 3	4	7
C. Recommendations 11 The Charging IS Skills Mire Requirements			18.
A. How the distribution of shills is changing	2	4,5	6
B. Breaking the system plevelowent authorish	2	4	6
C. Mare tools to understand and use E. F.	1	4,5	5.
IV. Trends in Software Development Skille Regisements		2,5	17
B. Information Center		2.5	
C. End-User Comp Developed Systems		2,5	3.
D. application Generators / Report generators	1		31
E. application Software Packages		2,0	3,
V. E. O iganization Considerations		~~~	
A. The Changing Structure		3,0	18
B. The Changing Career Paths			_
C. Stalling and Recruiting		_	-
	+		4,
D. Training and Columnia	-	1.5	21
VI Conclusions and Recommendations			6.
A Conclusions		2	2
B Decommendations	- -	3	_
C		3	_4
D		-	_
VIII. F. Traditional Systems Sevelopment Methodology		1	- 1
A	-	-	
В	1		_
C	_		_
D	\vdash		_
Sub-total Pages	-		=
APPENDIX			_
A. Definitions			
B. Data Base			
C			
D			_
E. Questionnaire - Vendor			
F. Questionnaire - User			
G. Index		6	6
Total Pages	18 1	59	17
- 5 -	1.0	7.1	10



1. Library: Source: Journal Arthles Objective: Current info on seftware development and methodogies 2. Reports: Code Title Objective (Probability tools report specifications) 3. Other Sources: Project Management 1. Project Manager 2. Initiation Date Start Date 3. Midpoint Review 4. First Draft Due 5. Word Processing Begin Date 6. Shipping Date
2. Reports: Code Title Objective Project Management 1. Project Manager 2. Initiation Date 3. Midpoint Review 4. First Draft Due 5. Word Processing Begin Date 6. Shipping Date
Project Management 1. Project Manager 2. Initiation Date Start Date 3. Midpoint Review 4. First Draft Due 5. Word Processing Begin Date 6. Shipping Date
1. Project Manager 2. Initiation Date Start Date 3. Midpoint Review 4. First Draft Due 5. Word Processing Begin Date 6. Shipping Date
4. First Draft Due 5. Word Processing Begin Date 6. Shipping Date
6. Shipping Date
Out a
Other Comments and Direction



TABLE OF CONTENTS SPECIFICATION

REPORT CODE: TITLE SECTION TITLE:	PAGES:							
SUBSECTION TITLE:	CONTENT/SOURCE	# Exhibits	Text	Tota				
· ·								
								
·								
		1						
								
			\neg					



111	The Changing IS Skills Mix Regumements		5	13
	A. How the distribution of skills is change	lug		4.5
2				1,5
	1. The IS professional staff 2. The end-user developed system			1,5
	and the second s			
	3. The Information Center			1.5
2	B. Breaking the Systems Dave Comment Bottler	ack	2	4
	1. Emphasis on design			.5
	2. More end-user involvement			.0
	3. Impact on skills requirements			. 5
				1,5
- 1	C. Mare Terla to Understand and that I super of softwar development took 2 Shills implications			.5
	3. Training and Education considerate	ono)	.5
	3	_	- 17	
11/		5	- 17	nents
TV	Turds in Software Swelgment Skills	5 Keg	uner	nents
IV	Trerds in Software Ewelepwent Skills A. Prototyping	Keg 1	2,5	nents
TV .	Turds in Software Swelgment Skills A. Prototyping 1. Sefinition	Keg.	2,5	nents
TV	Trerds in Software Sevelopment Skills A. Prototyping 1. Sefinition 2. Skills required	Keg	2,5 ,5	nents
TV	Trerds in Software Sevelopment Skills A. Prototyping 1. Sefinition 2. Skille required 3. Sources of skills	Keg	2,5 ,5 ,5	nents
<u>IV</u>	Thereto in Software Eccelepement Skills A. Prototyping 1. Sefinition 2. Skills required 3. Sources of skills B. Information Center	5 Keg.	2,5 .5 .5	nents
IV	Trerds in Software Sevelopment Skills A. Prototyping 1. Sefinition 2. Skills regunded 3. Sources of skills B. Information Center 1. Orfinition	5 Keg 1 0 1 1 0 1 1 0	2,5 ,5 ,5 ,5	nents
IV	Thereto in Software Sevelopment Skills A. Prototyping 1. Sefinition 2. Skills regimed 3. Sources of skills B. Information Center 1. Refinition 2. Skills regimes	1000 1000 1000 1000 1000 1000 1000 100	2,5 .5 .5 .5 .5	nents
IV	Thereto in Software Sevelopment Skills A. Proto-typing 1. Sefinition 2. Skills required 3. Sources of skills B. Information Center 1. Cefinition 2. Skills required 3. Sources of skills	5 Kegg 1 0 0 1 1 0 0 0 1 1 0 0 0 1 1	2,5 ,5 ,5 ,5 ,5	nents
IV	Thereto in Software Sevelopment Skills A. Prototyping 1. Sefinition 2. Skills required 3. Sources of skills B. Information Center 1. Definition 2. Skills required 3. Sources of skills C. Erd-Her Eurlopest Systems	5 Keg 1 0 0 1 1 0 0 1 1 1	2,5 .5 .5 .5 .5 .5 .5 .5	nents
IV	Thereto in Software Sevelopment Skills A. Proto-typing 1. Sefinition 2. Skills required 3. Sources of skills B. Information Center 1. Cefinition 2. Skills required 3. Sources of skills	5 Kegg 1 0 0 1 1 0 0 0 1 1 0 0 0 1 1	2,5 .5 .5 .5 .5 .5 .5 .5	nents



D. applications Descrators / Report General	Tora 1 2,5
1. Cafinition	0 .5
2. Skille regiment	0 1.5
3. Sources	0 .5
E. application Software Packages	1 2
1. Thereto and approaches	6 .5
2. Skills required	0 1.0
3 Sources	0 .5
F. Facilitizina Systems Evelopment Methodology	1
F. Traditional Systems Development Methodology 1. Impact of new travels 2. Personnel conscientions	. 5
I Organizational Considerations	4 14
1 A. The Changing Structure	1 3.0
1. Executalizary VS Contralizary Soft	war Lavelowment
2. Specialists LS Generalists	0 1.5
1 B. The Changing Career Patha	
1. IS Seperission and Maragement	
2. The Programmer and area Cyst	
3. The Technical Support analyst	
4, The Computer Operatore	0 1:0
4. The Computer Operators 5. Stoffing and Recruiting	1 3
1. Tutur Human Reserve Ranning	1 0 2.0
2. Recruiting new stills	1 . 1.0
, D Training and Education	1 1,5
1. Typos	0 1.0
2. Trends	1 ,5

IT Corchisions and Recommendations



1984 QUARTERLY SCHEDULING PLAN (Q3)

PROJECT: USKI

DATE: 6-14-84

PROJECT LEADER: _____ Kerns SEPTEMBER AUGUST CORPORATE/WEEK ENDING JULY ACTIVITY CORP 36(4) 37 38 39 27(4) 28 29 30 31 32 33 34 35 MAN EFFI-DAYS CIENCY ESMD WEEK 9/28 8/10 9/7 9/14 9/21 7/6 7/13 7/20 7/27 8/3 8/17 8/24 8/31 PROJECT NAME RW 1.5 PROJECT 6/15 AUTHORIZATION/ SPECIFICATION 0.5 0.5 Q DESIGN Q APPROVAL/ REVIEW MEETING INTERVIEWS ON SITE () NO. INTERVIEWS RW 2.0 2.0 PHONE () NO. DATATAB RW 3.0 3.0 AND ANALYSIS 2.0 0.5 WRITING 4.5 40.5 ABSTRACT RW 0.5 11.0 QC SK 1.0 & final Print Stop 1 WP REPORT PROD. AND SHIPPING 0.5 MANAGEMENT 1.0 SIC 1.0 "THANK YOU" MAILED PLAN RW 12.0 12.0 2.0 7.0 ACTUAL 3.0 1.0 SK 30 0.5 CUM P/A 2.0 2.0 0.5



PROJECT: USKI

DATE: 6-14-84

PROJECT LEADER: MEND Reine CORPORATE/WEEK ENDING JUNE APRIL MAY ACTIVITY WEEK 22(4) 23 18 21 24 26 15 17 19 MAN EFFI-DAYS CIENCY ESMD 5/18 5/25 6/1 6/8 6/15 6/22 4/6 4/13 4/20 4/27 5/4 5/11 6/29 PROJECT 1.5 1.5 PROJECT KW AUTHORIZATION/ 0.5 SPECIFICATION 0.5 0.5 O DESIGN 0.5 Q APPROVAL/ REVIEW MEETING INTERVIEWS ON SITE () NO. 11.50.5 INTERVIEWS RW 2.0 2.0 PHONE () NO. DATATAB, ReH. RW 3.0 WRITING RW 4.5 ABSTRACT, COMEN, RW 0.5 0.5 QC SK 1.0 1.0 REPORT PROD. AND SHIPPING 0.5 PRESENTATION-SK 1.0 1.0 MANAGOMENT "THANK YOU" MAILED 1.5 3.0 3.0 PLAN RW 12.0 12.0 0.5 0.5 0.5 3.0 ACTUAL 3.0 CUM P/A 15.0



USKI PERSONNEL DISTRIBUTION

	Managers	PIA		IC	34 IN	TELE	DB	System	OPS	
	4	12		4	6	1	3	2	3	
	35	120		3	3	6	14	9	5	
	20	30		4	12	4	7	フ	10	
				5	7					
	8	24	2	3	4	3	(5		
	8	50	0	10	17	5	4	3	4	
	20	38		9	15	16	フ	8		
	55	119	0	13	20	37	416	21		
	12	49	0	1	6	12	6	4	10	
		80	0	1	3	6	Ø	6		
	5	18	0	2	. 4	1	Ø	2		
	5	44	0	10	12	22	4	8		
	10	35		4	5		4	6		
		100		9	12	12	20	20		
10T	182	719		78	126	125	116	101.	32	
AV	17	55		6	9	10	9	8	6	
TOT				11	1					
	15%	49%		6	90	97,	87.	7%	6%	



Usk1

STAFFING & EDUCATION

FREQUINCY DITTELBUTION OF STATE US METHODS

RECRUITING (MGFNCIESI PERIODICAL, ETC)	TRAINING IS PERSONNEL (PROMOTIONS, CHAMBES, ETC)	TRANSFERING USET (TRAINING SEC, CF XS, ACCOS ER)	TRAINING COLLEGE GRADS (FINTY LEVEL FROM OUTSIDE)	GTHEK
111112311	23222123	4 3342	2 4313 43224	3
TOT 19 AV 1.60 = 111	1.8 % -	*** 27 **** = ****	2.8 7 =	

FRE UF Y METRICATION OF TRAINING & ED METICAS

PROF DIONAL CONDUCTS IN HOUSE COURSES	INDIVIDUAL GUTSIDE LOUISES	AUDIO/VISUAL TRE. NING SERVICE CONTRACT	FORMAL INTERNAL TRAINING DEPT	OTHER
34432	223332322	11222111	1111431	
313	13222	2231	13	
	32	19		
6.90	1.3	16	18	
7.1	7.7	5.4	8,2	



USKI- CLIENT POLL FHTURE SKILL REQUIREMENTS FOR SW DEVELOPMENT

1. How important is it to array the import on skiller from new description techniques? il Pototyping, English Aser Systems Dev, Typlication Guerator, Parkages, etc.

2. Has the selvent of Pea and south generation Cargony of who towns It brighes had a significant ingress had a significant limit as changing the states recovered of the development staff? Shows this is corrected

3. So you believe the changing skills requirements have had, a will have on effect or accounting and/or training activities. Show we include approaches?

4. Me you finding a move book to the of specialists.

(is claim, CP/M, forth-grand larger as, graphies, VSAL)

Later City in a south to a leass the contract of the contract o

5. Lo you think project leader and money of having a clifficult time staying or top of the changing to therefore? So key want long to hatcher at properties? In they we becoming obsolets? Until they are handling this situation?



6. Has your organize tran charged its structure over the past 3 years? Is you it possibly charging over the next 3 years? uncer you like to see how others have reorganized?

7. When recenting a systems analyst for instance, have the skills primities changed over the past three years? I you see them changing over the next three years. Showed this be a count?

8. Vo you believe the COBOL & former is a made so stay demosaur? If so held't we be planning a case path for these pages?



JM DOLGONAS, UC 642-7273 CB 6-19 1:00 PM

· Skills obsoleccerce!

. Focus is their main language

· CCBOL programers

· Doesn't believe functional homeledge

· Reporting struction is changing

· who introduces new tools to top managers?

. Specialists use to be consultants to internal IS only.

· Roward system · recognition, conjugation,

· Career paths - 14on can operations personnel be used to assist and users.

. They have whole in the technical awareness for and user computing



Starley Jareynshe american Horchet

' They are just getting into prototyping (Hogen)

. They are looking for stong Business Stills · Skille of Coix programmer charging to PC

· They are reducing development staff and shafting people to the info center 3 werent 8 mptys 15 felowings.

They have been header toward elecentraling of systems development for some time

· They have responte control over hardware/syst Sw

· They have not yet started using 4th gen long · They have an entry level Training program designer

for college tirtents (a lot of self tea hing methods) what is it will egu ment for it specialist

installing DIS system?



arthur Hilley

1. End User Proficionay To the CHS EAR HET

- 1-1 FING STOOM BUSINESS SKILL FOR METER DESIGN

- 12 TING JULIAN DE EN-ROLIEN-IN

- THEH SUIFORT IN DEMAND AND WERE DRILT CONDET WITH FOR USER

- Cross TRAINING BULLES STETLES STETLE PROSERVE
- CUTSIDE THAINING MOTHY IBM NO FOR THE OUSE
- MIGNATION FROM BS TO TECH SUPPORT
- HIGHT MECIALIZED DOMN
- DECENTRALISATION. BUT ST 1 1 1 THING
- LOT OF PHOTACE ONE WITT 5 YOU ELITH MY LANGER PAST PROPERTY TUTERATION

CONSTRUCTS LATER COMPLEX SHITE DIFFICIALENT

- MAINT ANCE AS MUT CHEL TODES
- DEB STEP OF WILL DIE NOW IFFE WILL PIEK UP NOW STITE ALME WITH FACKAGES
- IS IS CONSIDERATE TO THE CONTROL WITH COMPREE OUT SYSTE FOIL
 - HOW TO STORES HAWKE CHATEL OUT



- Mclude Syptems analysis shell and leser interface capabilities

- Se cauful not to overlap with Affinan productionity report See fack for copy spec.

- What are the required skills? What were they 3 years ago,

what well they be in 3 years. Why are skills changing? - tow to develop or acquire skills - which makes the

most sense

- Sources of Skelled personnel

- Generalists us Specialists

- Impact of Endleses Computing on Skills sequences:

- What stratucio strould 15 employ to sastisfych skelle require what are the organizational implications to 15 + the Company ?

- How will sparges in skell sequences effect curent saffing. Will programmers, as we know them today,

still exist in there years: Why!

- What is the affect on management. How well it be different from managing current staff.

4 to 6 chenta

The state of the s MI - A S CO V S A S M C C I M - AND J And the second of the second o - and a service in the service of